Memorandum

From: Mick Leat, Iowa Department of Natural Resources

Date: October 7, 2003

Re: Council Bluffs MGP

40312977
Superfund

The following is a listing of the data gaps remaining in the assessment of the site referred to as the Citizens Gas and Electric Company Manufactured Gas Plant, broken down into the 3 media of concern at the site: 1) contaminant sources, 2) groundwater, and 3) soils.

1. **SOURCE AREA.** The Department's position is that these materials will need to be removed from the site or otherwise treated independent of risk assessment determinations.

    1. **Data Gaps.** Assessment will be needed to address these concerns.

        a) The following probable source areas were not investigated – 2 "oil tanks buried" shown on the eastern ½ of the site (adjacent to the RR tracks) and probable valve pit shown on the 1928 Sanborn map.

        b) No tar separators or tar wells/cisterns were shown on any of the Sanborn maps. Based upon my experience, these structures will vary in size, ranging from 10'-20' long and 5'-35' deep and could have been constructed of wood, concrete, or brick. These structures were a necessary component of every MGP site. Because of the size and length of operation of this plant, it would be expected that more than one of each of these had existed at the site and that they would be of the larger size.

    2. **Identified Source/Product Areas.** These are the source areas identified by the Department. Assessment may identify other source areas.

        a) Gas Holder #2 (16.5' deep) contains extremely high concentrations of BTEX and PAHs, based upon the analytical results from SB-16 (230 mg/kg benzene, 3,000 mg/kg cPAHs and 44,000 mg/kg tPAHs).

b) Gas Holder #3 (4.5' deep) contains extremely high concentrations of BTEX and PAHs, based upon the analytical results from SB-21 (160 mg/kg benzene, 970 mg/kg cPAHs and 16,000 mg/kg tPAHs).

c) Gas Holder #4 (16.5' deep) contains extremely high concentrations of BTEX and PAHs (820 mg/kg benzene, 1,300 mg/kg cPAHs and 25,300 mg/kg tPAHs). High concentrations of BTEX and PAHs also exist outside of the holder from SB-27 (7' bgs).

d) NAPL may exist at SB-15, based upon the analytical results from SB-1537 (730mg/kg cPAHs and 7,900 mg/kg tPAHs).

e) It appears that free product exists in monitoring well MW-3 (ST-11). Free product/tar exists at ST-6, ST-7, ST-8, ST-12, ST-13. .(This is from EPA's Jan. 24, 1992 letter to Peoples Natural Gas; Appendix B to the Phase II investigation report.) Free product has been shown to accumulate and possibly migrate away from MW-3 (Appendix M to the investigation report). Free phase oils were encountered at SB-20, which precluded the planned installation of a well at this location (April 20, 1994 letter from Barr Engineering to EPA; Appendix F to the Phase II investigation report). Figure 6-1 presents an area that exhibits a moderate to heavy sheen. This area seems to arbitrarily follow the approximate property boundaries of the MGP. The SB-15 and MW-6 areas should be included in this area, and this boundary unexplainably ends within 10 feet of the ST-7, ST-12, SB-19, SB-20, SB-28, and MW-5. Free product delineation is necessary.

f) Based upon the Department's experience, underground piping associated with the MGP may contain tars and other MGP wastes. An assessment will need to be performed to locate piping and characterize piping contents.

2. GROUNDWATER.

1) **Data Gaps.** The data gaps associated with groundwater characterization will need to be addressed through site assessment.

a) The groundwater flow direction has fluctuated in the past from due western to due southern flow; we need a better understanding of the site hydrogeology.

b) Based upon deep soil analytical data from SB-15, high concentrations of groundwater contamination is located on the 7th Street ROW and north of the western parcel. The northern extent of this contamination is unknown.

c) Based upon the elevations of the bedrock surface taken from borings SB-15, SB-23, F-7225, F-7233, F-7237, and F-7240, a depression appears to be present south of the Gas Holder #4, which may serve as an accumulation point for DNAPL. On page 28 it is stated that NAPL was encountered at the base of the coarse alluvial aquifer in SB-15 and on page 39 it is stated that NAPL "is expected to pool at the bedrock surface and may migrate down slope along the bedrock surface". The DNAPL pool detected in the SB-15 area needs to be delineated. The wells installed by Pottawattamie County show that it has migrated east past Gas Holder #4, which is in an upgradient position. SB-15 is located upgradient from all 4 gas holders so DNAPL has either migrated upgradient in this area or an alternate source of contamination is present.

d) The downgradient extent of the contaminant plume in groundwater has only been partially defined by MW-8. Additional delineation is needed east and west of MW-8, downgradient of holders 1, 3, and 4.

e) An upgradient well should be installed for the western portion of the MGP property, combined with at least one upgradient well screened near the bottom of the coarse alluvium, to characterize upgradient contaminant concentrations.

f) Visible contamination was noted in borings installed by Thiele Geotech due east of the easternmost gas holder from about 30' bgs to the bottom of the alluvial aquifer at 101'. Groundwater contaminant levels ranged up to 6,160 ug/L naphthalene in TMW-4 (water table well) and NAPL was identified at TMW-1, located near the intersection of 6th Street and 11th Avenue.

g) After site assessment is complete, risk assessment techniques will be applied to determine the appropriate response to the identified groundwater contamination.

3. SOIL

1) **Data Gaps.** The data gaps associated with groundwater characterization will need to be addressed through site assessment.

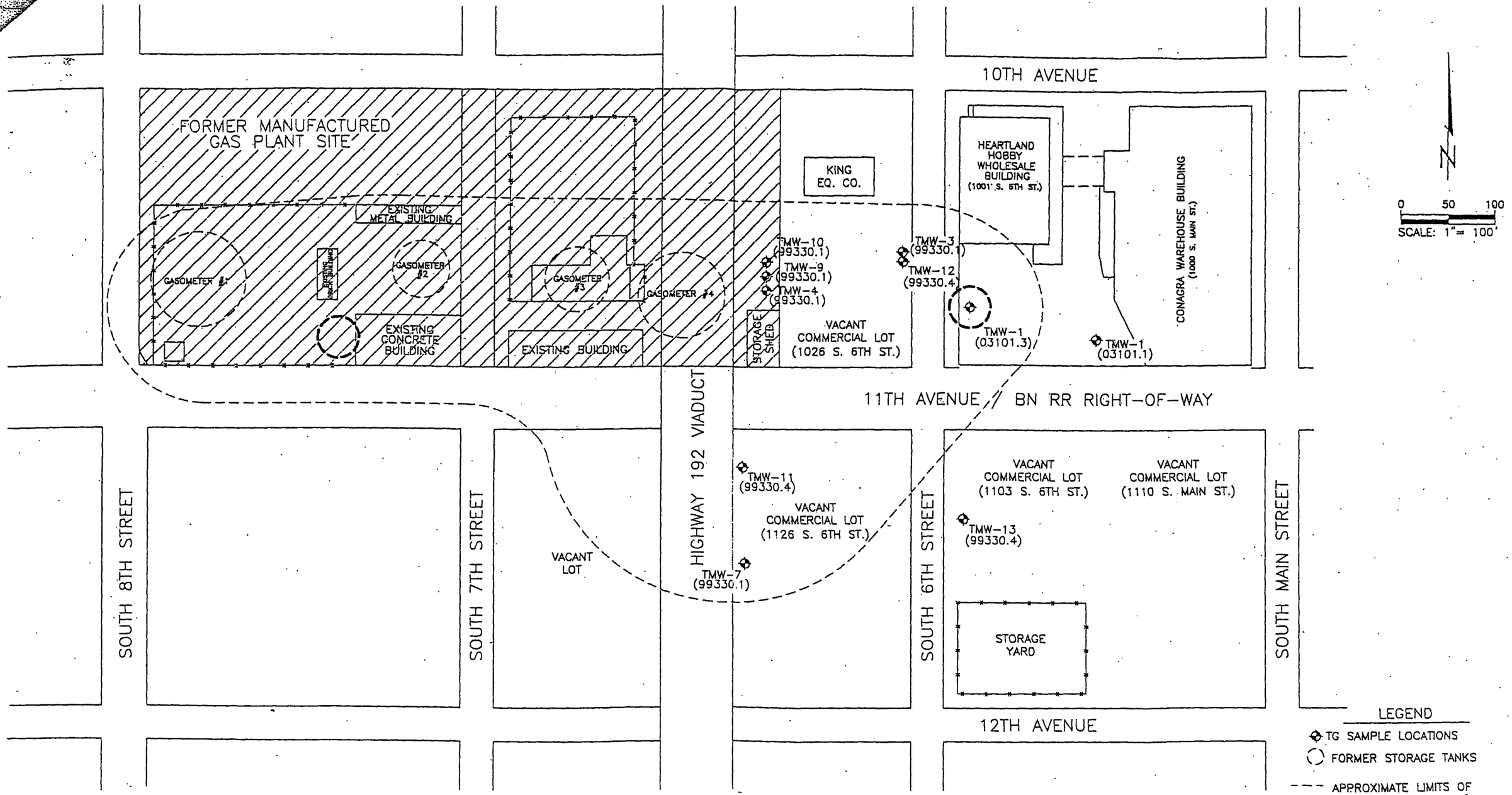
a) Surface soil contamination in ROW borings on 7th Street exceed the Statewide Standards for benzo(a)pyrene (0.29 mg/kg): SB-15 (0.410 mg/kg), (SB-20 0.54 mg/kg). Aquila collected samples in ROW in 2002 that indicated similar and higher levels of BaP contamination. The extent of PAH and BTEX contamination in soils above statewide or background standards needs definition in the ROW and street itself.

b) Off site surface soil contamination exists above statewide standards: SB-24 (14 mg/kg) on IDOT property (within area of Gas Holder #4), SB-23 (0.43 mg/kg BaP) south of the site. The extent of PAH contamination in soils above statewide or background standards needs definition, particularly in those areas where redevelopment is proposed.

c) Surface soil contamination exceeding statewide standard exists on both the eastern and western properties, as evidenced by soil results from SB-18, SB-19, SB-21, SB-22, and SB-24. Offsite surface soil contamination may exist north of SB-19 as this boring was installed within 10 feet of the property boundary.

d) Surface and subsurface soil samples need to be collected and quantified for all of the MGP chemicals of concern in the properties included in the Council Bluffs South Main Urban Renewal Area where MGP wastes have been identified.

e) After site assessment is complete, risk assessment techniques will be utilized to determine the appropriate response to the identified soil contamination.



SITE PLAN

TG THIELE GEOTECH, INC.

PROJECT

COMMERCIAL PROPERTIES
11TH AVE. & S. 6TH STREET